Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%

The first column shows the activity. The second column displays the cost per foot of each activity. The default cost per foot values in the BCPM are based on a national average of available contractor prices for that activity. The third column displays the percent of the activity for the specific density group and terrain difficulty. The sum of the column of percent of activities should be 100 percent. The fourth column represents the percent of the activity assigned to telephone service. In this example, 95 percent of the cost of underground feeder activities are assigned to telephone service, which 80 percent of the cost of underground distribution are assigned to telephone service. In other words, the telephone company shares these activities with other companies 5 percent of the time when placing underground feeder facilities and 20 percent of the time when placing underground distribution facilities. The cost per foot, the percent occurrence of the activity, and the percent of the activity assigned to telephone are multiplied to develop the cost of placing facilities in a density group and terrain situation. The total cost per foot is the sum of the weighted activity costs.

Structure Cost =

Density Group Terrain-Specific Cost Per Foot * Cable Length

Switch Equipment Investments

Switching investments are calculated based on current central office locations as reported by Ontarget's Exchange Info. The BCPM calculates that total number of switched lines terminated at the central office. In addition, the BCPM determines the size of the company owning the switch[7]. This value is used to look up the value of the switch curve from the BCPM input table (e.g., fixed costs of $261,871 and variable line amount of $225). Using the line size, the fixed and variable line cost of the switch along with the input table values of switch discount and percent of switch used for local calling, a cost per line for that particular switch can be developed. The function used is as follows:

Cost per line for Local =
[(fixed costs/line size)%local +(variable costs/ switch fill)] * switch discount*

Land and Building Investments

Once the switching investment is determined, the land and building loadings are calculated by applying the land ratio and the building ratio. The land ratio is based upon the 1995 ARMIS values of Land divided by the sum of COE (Switching, Operator and Transmission).

[7] Even though the BCPM currently has only one cost curve, the BPCM algorithms and input tables have been modified to allow the input of separate switch curves based upon company ownership size (Small, Medium, and Large).

The Building factor was based upon a LEC Industry data request (the actual data value was a land and building factor, the ARMIS land factor was subtracted to arrive at the building factor). The functions are:

*Land investment = Land Factor * Switch Investment*

*Building investment = Building Factor * Switch Investment*

Interoffice Investment

The current version of the BCPM does not have a separate module to develop the interoffice investment. Rather, a factor is applied to switch investment to estimate the interoffice. The BCPM sponsors do not feel that this materially impacts the results of the model. To put it in perspective, Interoffice investment runs at about 3% (based upon the BCM2 value) of the switching investment. If the switch investment were $250 (1000 line switch) and the monthly capital cost for the switch ran at 1.8% (rough estimate), the interoffice monthly cost would be $0.135 ($250 * .018 * .03). Even if this estimate of the Interoffice ratio were off by 50%, the monthly cost would only change by ~$0.07. This is the reason the BCPM sponsors did not feel it was necessary to include Interoffice modeling in this release.

Circuit Equipment Investments

BCPM uses large and small digital loop carrier equipment investments split between the fixed costs of the remote terminal and digital loop carrier costs that vary by line. The fixed remote terminal costs include the optical line interface units, software, cabinet, power, and the access resource manager common card kit, as well as the comparable components at the central office terminal. The per line components include the line cards at the remote terminal and the central office terminal.

The circuit equipment investments by CBG are developed through the use of a "look up" table which provides the appropriate fixed terminal cost for the number of lines using the terminal, as well as the cost per line for the individual terminal size. The investments found in the table include engineering and installation, and represent current price levels that large LECs pay for digital loop carrier systems (including their discount).

Support Investments

Once the model calculates the loop, switching, and interoffice plant (excluding land and building) needed for each CBG, ARMIS developed investment ratios are used to load in the support investments. Support investments represents those plant items not directly used in the provisioning of basic service. They include: Motor Vehicle, Special Purpose Vehicle, Garage Work, Other work Equipment, Furniture, Office Support equipment, and General Purpose Computers. The ARMIS ratios are based upon the 1995 regulated data and are developed as follows:

$$\text{Account Ratio} = \frac{\text{(Account Balance)}}{\text{(Total Plant in Service (TPIS) - Support Investments)}}$$

Annual Cost Factors

The BCPM has been designed to allow inputs of the annual charge factors for all major plant accounts (e.g., conduit has its own values). This was done to recognize that all of the major accounts have differing lives, salvage, cost of removal, tax lives, and survival curves, which ultimately lead to distinct capital costs factors for each account.

The estimates of lives are used as inputs into the BCPM's Capital Cost module to develop the depreciation rates. The lives, salvage, and cost of removal are based upon a LEC industry data survey requesting forward looking values.

The development of the annual charge factors is as important as the proper building of the plant. The BCPM includes a powerful yet simple model that allows the user to vary the basic inputs to arrive at the Depreciation, Cost of Capital, and Tax Rates for each account. This new module incorporates all of the methodologies that are currently in practice today, including: Deferred taxes, Mid-year, Beginning Year, and End Year placing conventions, Gompertz-Makeham Survival curves, Future Net Salvage, Equal Life Group methods, and many other items. The module also incorporates separate Cost of Debt and Equity rates, along with the Debt to Equity ratio. And as stated, all of these inputs are user controlled. Once the annual charge factors are developed, they are simply multiplied by the investment (account by account) to arrive at a yearly capital costs. These yearly amounts are then converted to a monthly amount by dividing by 12.

The Annual charge factor categories include:

Rate of Return,
Depreciation,
FIT,
State Taxes, and
Other Taxes

The plant accounts separately accounted for in the model's capital costs are:

Motor Vehicle,
Special Purpose Vehicle,
Garage Work,
Other work Equipment,
Furniture,
Office Support equipment,
General Purpose Computers,
Land,
Building,
Switching,
Circuit/DLC,
Poles,
Aerial Copper,
Aerial Fiber,
Buried Copper,

Buried Fiber,
Underground Copper,
Underground Fiber, and
Conduit

Operating Expenses

To avoid the mischaracterization and misappropriation of costs, the BCPM correctly separates operating expenses from investment in the model. To put the cost of Universal Service in perspective, an average of up to 40-50% of the costs are attributable to the operating expenses of the company.

The BCPM uses investments only to drive the capital costs (depreciation, return, and taxes) of the company. The operating expenses were developed as an expense per line. These per line estimates are not based on ARMIS values. Rather, these expense values were derived by weighting together the LEC estimates of forward-looking expenses per line for each Class A expense account (6xxx series). The expenses were defined as the total forward-looking loop costs for single line residence and business and includes touchtone, a white page listing, and access to operator and emergency services.

In regards to the forward looking nature, the estimates from the various LEC's included such factors as adjustments for productivity gains, exclusion accounts such as Analog switching, and inclusion of forward looking adjustments. However, all estimates started with 1995 actuals (a few companies used multiple years) as the basis of the values. These current year expenses are the best known values of what it costs the LECs to maintain the current efficient telephone network.

This detailed, forward looking, per line design of the BCPM

- Corresponds to the forward looking investments in the model
- Allows the user of the system to determine what is and what is not included in the cost of Universal Service
- Clarifies the understanding of what is driving the cost of Universal Service
- Could allow the use of Benchmark costs
- Avoids mischaracterization of costs
- Avoids the link that causes a discount in investment to discount operating expenses

The correct development of the Universal Service costs cannot utilize an archaic method of using a loaded annual charge factor applied against investment to derive total costs. This method may have worked in the past when the end product was a statewide or company wide cost. However, in developing the cost of Universal Service, one is trying to estimate the costs of smaller geographic units. The use of the loaded annual charge factor method also unfairly penalizes long loop length/high investment customers by assigning more of the operating expenses of the business. However, most costs do not vary by the loop length or loop investment. Rather, they are driven by other cost drivers (e.g., lines, technology, etc..)

In addition to avoiding the inaccuracies associated with using an annual charge factor to load all expenses, the BCPM avoids the additional problems that are the results of deriving

an annual charge factor from ARMIS ratios. In effect, by using an ARMIS derived ratio to base the operating expenses on, the model would allocate the current operating expenses of a company based on multiplying forward looking investments by the ARMIS ratio of (current expenses/embedded investments). One cannot be sure what the end product truly represents.

The expense accounts used in the model are:

Network Support
General Support
COE Switching
Operator Systems
COE Transmission
Information Orig/Term
Cable and Wire Facilities
Other Property Plant
Network Operations
Access
Marketing
Services
Executive and Planning
General and Administrative
Uncollectibles

User Adjustable Inputs

Nearly all the variables included in the BCM2 are user adjustable. Pacific Bell, U S WEST, and Sprint have set default values for the inputs at levels that they feel represent forward-looking practices for the deployment of basic local telephone service. Appendix A describes the CBG specific input fields utilized by the BCPM. Appendix B provides a complete listing of user inputs to the investment module.

Development of Default Values

To develop a nation wide average of material, placing, engineering and splicing cost, a questionnaire was sent to participating members of the Best of Breed (BOB) model development team (US West, Bell South, Nynex, GTEC, Bell Atlantic, Ameritech, Sprint, Pacific Bell, South Western Bell, and PTI). The questionnaire requested company forward looking cost for loop material and labor. The material cost provided is based on company specific cost that includes price discounts, therefore, no additional discounts are applied to material cost in the user input tables. The cost information was averaged to develop a national average for default values in the BCPM. Due to some material cost being slightly lower in cost than the next size down (this is due to vendor volume pricing), smoothing was performed to price material cost in a linear arrangement.

Cable Investment:

Average installed cost of copper and fiber cables are developed by company forward looking cost using today's discounted material cost. Copper cables are 26 gauge in the feeder and 24 gauge in the distribution. A 12,000 foot total loop length is set as the default for a breakpoint of copper to fiber technology. This means that copper will be the transport medium from the wire center to the subscriber when the total loop length is 12,000 feet or less. Loop lengths beyond 12,000 feet fiber will be deployed in the feeder along with digital loop carrier. To extend the breakpoint, a user must assume a 26/24 gauge feeder and adjust cable cost accordingly. In addition, cost of load coils and other transmission requirements must be considered when extending copper loop lengths.

The type of underground copper cable used is DucPic to avoid pressurization expense. Buried copper cable is filled armored to minimize cable damage due to water, dig-ups, and animals. Aerial cable is single sheath (BKTA/BKMA) when available, otherwise DucPic cables are used. Messenger installed cost is added to the cost of aerial cable. Buried and aerial fiber cables includes cost for extruded outer duct (cables placed in flexible plastic duct before placement) for additional protection. This method is placing the fiber cable in the duct before placing greatly facilitates the placing operation in aerial and buried plant.

Digital Loop Carrier (DLC) Investments:

The DLC placements in the BCPM uses Integrated Digital Loop Carrier technology. This technology eliminates many of the costs associated with standard or "universal" systems. Fixed cost assumes all first costs associated with the placement of DLC systems at both the remote terminal and the central office. The fixed cost includes common equipment, site preparation, right-of-way cost, remote cabinets, commercial power, protection, central office fiber optic terminal (FOT/COT) etc. The Per Line Cost or variable cost is the cost of line cards on a per line basis (installed cost of line cards divided by 4 services per line card at the Remote Terminal plus the installed cost of the central office line card (DS1 card) divided by 24 services per card. Sizes of DLC systems in the BCPM range from 24 to 2,016 channels. This will provide the flexibility and the economics of deploying sizes based on density and growth.

Structure Costs:

Structure types and costs vary by type of facilities (aerial, buried, or underground), density, and soil conditions. Sizing of conduit and manholes are based on the required amount of facilities required for telephony. No additional capacity has been added for sharing. For example, if a placement of 3 copper cables are required then 3 ducts are placed for the cables and one duct is placed for maintenance. In addition, a pre-cast manhole is placed by the telephone company. Sharing is considered with poles.

Trench cost for both conduit and buried cable is averaged from the forward looking cost data received from the cost questionnaire. Companies also provided data for the cost of different types of trenching done in each of the density zones and for the different types of soil conditions. This information was weighted and averaged for the trenching default cost in the BCPM.

APPENDIX A

Data for BCPM Model

1/4/97

The following summarizes the data to be provided for the BCPM model. This data is provided as a set of comma-separated variable ASCII text files. There are 52 of these files: 51 of them covering the states and the District of Columbia, and one reference file of Operating Companies.

Each comma-separated variable file presents character fields without surrounding quotation marks. Spaces freely appear in such character fields, but commas and ampersands never do. When either a comma or ampersand appears in the original data, it is be converted to a space in that field in the output file.

The single *reference* file, containing one record per Operating Company, in Operating Company Number order, is summarized from the 51 wire center BCM spreadsheets. Each record of this file contains 3 fields:

- **OCN**: Operating Company Number ... taken from the OCN column of the wire center BCM Excel spreadsheets
- **Company Name**: The name of the Operating Company ... taken from the OCNAME column of the wire center BCM Excel spreadsheets
- **Size Indicator**: The character **L**, **M**, or **S**, indicating the company size ... taken from Column N of the wire center BCM Excel spreadsheets

The 51 *state* files, each containing one record per Census Block Group within that state, in CBG FIPS code order, are constructed from several sources: Census Block Group boundaries and household count from the US Census Bureau, business phone line count per CBG from spreadsheets by John Banks of Sprint, CBG area adjustments from files by Peter Copeland of US West, wire center point and boundary data from OnTarget Mapping's Exchange Info Plus product, and wire center full CLLI codes and operating companies from spreadsheets by John Banks. Each record of the state files contains these fields:

- **CLLI**: The 11-character code (per your request) of the wire center in whose boundaries the ***geographical centroid*** of the Census Block Group falls. The unique 8-character code provided by the OnTarget data is expanded to 11 by matching it against CLLI codes in the wire center spreadsheet provided to us by John Banks of Sprint.
- **Company Name**: First 20 characters of the name of the operating company of the wire center. Although this name is available in the OnTarget data, it is taken instead from the OCNAME column of the wire center spreadsheet provided by John Banks.

- **OCN**: Operating Company Number (corresponding to Company Name), included here to assure the possibility of a unique join with the reference file of operating companies.

- **Cent Off Type**: Single character Central Office Type, also spoken of as "Host/Remote Indicator". In the preliminary files already delivered, this field is empty, because the data with which to fill it in has not yet been received. It is due shortly. In the final form of the files, this field will be present, and will be taken from the wire center spreadsheets provided by John Banks.

- **Census Block Group Number**: The FIPS code of the Census Block Group represented in this row. This is in the 12-character form *ssccctttttg*, where *ss*=State, *ccc*=County, *ttttt*=Tract (with no period as punctuation), and *g*=Group (the high-order digit of Census Block numbers belonging to this Group).

- **Quadrant**: Consider angle *Omega* on a sphere to be an angle whose vertex is the location of the Wire Center and whose sides are rays from this vertex; the base side is a ray to due east, the other side a ray through the centroid of the subject Census Block Group. The angle is measured in positive degrees with counterclockwise rotation from the due east point. Then,

  If *Omega* >= 315 or *Omega* < 45, Quadrant = 1
  If *Omega* >= 45 and *Omega* < 135, Quadrant = 2
  If *Omega* >= 135 and *Omega* < 225, Quadrant = 3
  If *Omega* >= 225 and *Omega* < 315, Quadrant = 4

  Quadrant can be calculated by:

  1 + Int(((*Omega* + 45) Mod 360) / 90)

- **Omega**: The angle *Omega* defined above, in degrees with one fractional digit.

- **Alpha**: This angle, in degrees with one fractional digit, is a function of the angle *Omega* and the Quadrant it falls in. Its range is 0 <= *Alpha* < = 45. It can be calculated by:

  Abs(*Omega* - (*Quadrant* - 1) * 90)

  except where *Omega* >= 315, in which case *Alpha* can be calculated by:

  360 - *Omega*

- **Centroid Distance Feet**: The distance, in feet with two fractional digits, from the Wire Center location to the centroid of the subject Census Block Group. This value takes into account the curvature of the earth.

- **Total Households**: Count of Households in the Census Block Group. This number is taken from the Census Bureau's 1990 figures, then modified for each Census Block Group of a county by the Census Bureau's 1995 estimate of population change in that county. This number is rounded to a whole number.

- **Total Business Lines**: Count of Business Lines in the Census Block Group. This number is taken directly from the data of the BCM model, in spreadsheets provided by John Banks of Sprint.

- **Area Sq Miles**: Area of the Census Block Group, in square miles with 6 fractional digits. Normally, this is the area of the Census Block Group as determined from boundaries extracted from the US Census Bureau's TIGER files. However, certain low density CBGs are subject to a specific reduction in stated area, based on the road network. For each CBG to which this adjustment should apply, the area is taken instead from a set of files provided by Peter Copeland of US West.

- **Depth To Bedrock (Inches)**: Average minimum depth to bedrock for the Census Block Group, expressed in inches with up to 2 fractional digits.

- **Rock Hardness**: Predominant rock hardness for the Census Block Group ... HARD or SOFT, or blank to indicate neither.

- **Surface Soil Texture**: Predominant surface soil texture in the Census Block Group, an abbreviation of up to 7 characters.

- **Water Table Depth (Feet)**: Average minimum water table depth for the Census Block Group, expressed in feet with up to 2 fractional digits.

- **Minimum Soil Slope**: Average minimum soil slope for the Census Block Group, expressed with 2 fractional digits.

- **Maximum Soil Slope**: Average maximum soil slope for the Census Block Group, expressed with 2 fractional digits

- **New Terrain Variable**: This field is (and will be) empty in the data as delivered ... Note that the last character of each of these records will be a comma, indicating that a field is logically present but actually missing at the end

APPENDIX B

	Underground															
	Normal					Soft Rock					Hard Rock					
Density Group 0-10	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.27	67.00%	100.00%	79.00%	100.00%	$ 2.34	5.00%	100.00%	8.00%	100.00%	304.00%	0.00%	100.00%	0.00%	100.00%
Rocky Trench	$ 4.22	0.00%	100.00%	0.00%	100.00%	$ 4.32	25.00%	100.00%	42.00%	100.00%	533.00%	51.00%	100.00%	46.00%	100.00%
Backhoe Trench	$ 2.70	17.00%	100.00%	5.00%	100.00%	$ 2.81	48.00%	100.00%	28.00%	100.00%	395.00%	30.00%	100.00%	35.00%	100.00%
Hand Dig Trench	$ 4.99	2.00%	100.00%	2.00%	100.00%	$ 5.15	5.00%	100.00%	5.00%	100.00%	684.00%	5.00%	100.00%	5.00%	100.00%
Boring	$ 11.80	2.00%	100.00%	2.00%	100.00%	$ 12.05	5.00%	100.00%	5.00%	100.00%	1447.00%	2.00%	100.00%	2.00%	100.00%
Cut & Restore Asphalt	$ 8.72	5.00%	100.00%	5.00%	100.00%	$ 10.84	5.00%	100.00%	5.00%	100.00%	1206.00%	5.00%	100.00%	5.00%	100.00%
Cut & Restore Concrete	$ 9.63	5.00%	100.00%	5.00%	100.00%	$ 11.70	5.00%	100.00%	5.00%	100.00%	1286.00%	5.00%	100.00%	5.00%	100.00%
Cut & Restore Sod	$ 3.75	2.00%	100.00%	2.00%	100.00%	$ 4.54	2.00%	100.00%	2.00%	100.00%	565.00%	2.00%	100.00%	2.00%	100.00%

	Buried Normal					Buried Soft Rock					Buried Hard Rock				
Density Group 0-10	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.14	88.00%	100.00%	78.00%	100.00%	$ 1.15	40.00%	100.00%	43.00%	100.00%	$ 1.29	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.37	0.00%	100.00%	0.00%	100.00%	$ 1.39	30.00%	100.00%	25.00%	100.00%	$ 1.62	51.00%	100.00%	44.00%	100.00%
Trench & Backfill	$ 2.27	0.00%	100.00%	10.00%	100.00%	$ 2.34	5.00%	100.00%	5.00%	100.00%	$ 3.04	5.00%	100.00%	5.00%	100.00%
Rocky Trench	$ 4.22	0.00%	100.00%	0.00%	100.00%	$ 4.32	5.00%	100.00%	4.00%	100.00%	$ 5.33	25.00%	100.00%	34.00%	100.00%
Backhoe Trench	$ 2.70	0.00%	100.00%	0.00%	100.00%	$ 2.81	2.00%	100.00%	2.00%	100.00%	$ 3.95	4.00%	100.00%	2.00%	100.00%
Hand Dig Trench	$ 4.99	0.00%	100.00%	0.00%	100.00%	$ 5.15	3.00%	100.00%	3.00%	100.00%	$ 6.89	1.00%	100.00%	1.00%	100.00%
Bore Cable	$ 11.80	0.00%	100.00%	0.00%	100.00%	$ 12.05	1.00%	100.00%	1.00%	100.00%	$ 14.47	1.00%	100.00%	1.00%	100.00%
Push Pipe & Pull Cable	$ 6.80	0.00%	100.00%	0.00%	100.00%	$ 7.00	2.00%	100.00%	5.00%	100.00%	$ 8.96	1.00%	100.00%	1.00%	100.00%
Cut & Restore Asphalt	$ 8.72	5.00%	100.00%	5.00%	100.00%	$ 10.84	5.00%	100.00%	5.00%	100.00%	$ 12.06	5.00%	100.00%	5.00%	100.00%
Cut & Restore Concrete	$ 9.63	5.00%	100.00%	5.00%	100.00%	$ 11.74	5.00%	100.00%	5.00%	100.00%	$ 12.86	5.00%	100.00%	5.00%	100.00%
Cut & Restore Sod	$ 3.75	2.00%	100.00%	2.00%	100.00%	$ 4.54	2.00%	100.00%	2.00%	100.00%	$ 5.65	2.00%	100.00%	2.00%	100.00%

		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
Density Group 0-10		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group 11-50	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.38	55.00%	100.00%	65.00%	99.00%	$ 2.46	5.00%	100.00%	8.00%	99.00%	328.00%	0.00%	100.00%	0.00%	99.00%
Rocky Trench	$ 4.37	0.00%	100.00%	0.00%	99.00%	$ 4.49	34.00%	100.00%	48.00%	99.00%	567.00%	52.00%	100.00%	47.00%	99.00%
Backhoe Trench	$ 2.87	26.00%	100.00%	19.00%	99.00%	$ 3.00	42.00%	100.00%	24.00%	99.00%	432.00%	29.00%	100.00%	34.00%	99.00%
Hand Dig Trench	$ 5.24	4.00%	100.00%	2.00%	99.00%	$ 5.43	4.00%	100.00%	5.00%	99.00%	740.00%	4.00%	100.00%	5.00%	99.00%
Boring	$ 12.17	3.00%	100.00%	2.00%	99.00%	$ 12.45	3.00%	100.00%	3.00%	99.00%	1528.00%	3.00%	100.00%	2.00%	99.00%
Cut & Restore Asphalt	$ 8.90	5.00%	100.00%	5.00%	99.00%	$ 11.05	5.00%	100.00%	5.00%	99.00%	1247.00%	5.00%	100.00%	5.00%	99.00%
Cut & Restore Concrete	$ 9.79	5.00%	100.00%	5.00%	99.00%	$ 11.92	5.00%	100.00%	5.00%	99.00%	1323.00%	5.00%	100.00%	5.00%	99.00%
Cut & Restore Sod	$ 3.92	2.00%	100.00%	2.00%	99.00%	$ 4.73	2.00%	100.00%	2.00%	99.00%	603.00%	2.00%	100.00%	2.00%	99.00%

Density Group 11-50	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.16	72.00%	100.00%	74.00%	100.00%	$ 1.17	32.00%	100.00%	43.00%	100.00%	$ 1.66	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.40	0.00%	100.00%	0.00%	100.00%	$ 1.43	25.00%	100.00%	25.00%	100.00%	$ 1.70	45.00%	100.00%	44.00%	100.00%
Trench & Backfill	$ 2.38	10.00%	100.00%	11.00%	99.00%	$ 2.46	10.00%	100.00%	10.00%	99.00%	$ 3.28	10.00%	100.00%	10.00%	99.00%
Rocky Trench	$ 4.37	0.00%	100.00%	0.00%	99.00%	$ 4.49	5.00%	100.00%	4.00%	99.00%	$ 5.67	28.00%	100.00%	26.00%	99.00%
Backhoe Trench	$ 2.87	5.00%	100.00%	3.00%	99.00%	$ 3.00	12.00%	100.00%	2.00%	99.00%	$ 4.32	2.00%	100.00%	5.00%	99.00%
Hand Dig Trench	$ 5.24	1.00%	100.00%	0.00%	99.00%	$ 5.43	3.00%	100.00%	3.00%	99.00%	$ 7.40	1.00%	100.00%	1.00%	99.00%
Bore Cable	$ 12.17	0.00%	100.00%	0.00%	99.00%	$ 12.45	1.00%	100.00%	1.00%	99.00%	$ 15.28	1.00%	100.00%	1.00%	99.00%
Push Pipe & Pull Cable	$ 7.10	0.00%	100.00%	0.00%	99.00%	$ 7.33	0.00%	100.00%	0.00%	99.00%	$ 9.61	1.00%	100.00%	1.00%	99.00%
Cut & Restore Asphalt	$ 8.90	5.00%	100.00%	5.00%	99.00%	$ 11.05	5.00%	100.00%	5.00%	99.00%	$ 12.47	5.00%	100.00%	5.00%	99.00%
Cut & Restore Concrete	$ 9.79	5.00%	100.00%	5.00%	99.00%	$ 11.92	5.00%	100.00%	5.00%	99.00%	$ 13.23	5.00%	100.00%	5.00%	99.00%
Cut & Restore Sod	$ 3.92	2.00%	100.00%	2.00%	99.00%	$ 4.73	2.00%	100.00%	2.00%	99.00%	$ 6.03	2.00%	100.00%	2.00%	99.00%

Density Group 11-50		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group 51-150	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.48	46.00%	100.00%	60.00%	90.00%	$ 2.58	5.00%	100.00%	8.00%	90.00%	351.00%	0.00%	100.00%	0.00%	90.00%
Rocky Trench	$ 4.52	0.00%	100.00%	0.00%	90.00%	$ 4.66	35.00%	100.00%	48.00%	90.00%	600.00%	53.00%	100.00%	47.00%	90.00%
Backhoe Trench	$ 3.04	30.00%	100.00%	18.00%	90.00%	$ 3.19	38.00%	100.00%	21.00%	90.00%	470.00%	25.00%	100.00%	31.00%	90.00%
Hand Dig Trench	$ 5.49	5.00%	100.00%	5.00%	90.00%	$ 5.72	4.00%	100.00%	5.00%	90.00%	796.00%	4.00%	100.00%	5.00%	90.00%
Boring	$ 12.53	4.00%	100.00%	2.00%	90.00%	$ 12.86	3.00%	100.00%	3.00%	90.00%	1609.00%	3.00%	100.00%	2.00%	90.00%
Cut & Restore Asphalt	$ 9.09	5.00%	100.00%	5.00%	90.00%	$ 11.25	5.00%	100.00%	5.00%	90.00%	1288.00%	5.00%	100.00%	5.00%	90.00%
Cut & Restore Concrete	$ 9.96	4.00%	100.00%	4.00%	90.00%	$ 12.11	4.00%	100.00%	4.00%	90.00%	1360.00%	4.00%	100.00%	4.00%	90.00%
Cut & Restore Sod	$ 4.08	6.00%	100.00%	6.00%	90.00%	$ 4.92	6.00%	100.00%	6.00%	90.00%	640.00%	6.00%	100.00%	6.00%	90.00%

Density Group 51-150	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.18	60.00%	100.00%	69.00%	100.00%	$ 1.20	20.00%	100.00%	29.00%	100.00%	$ 1.38	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.44	0.00%	100.00%	0.00%	100.00%	$ 1.47	30.00%	100.00%	30.00%	100.00%	$ 1.77	45.00%	100.00%	40.00%	100.00%
Trench & Backfill	$ 2.48	10.00%	100.00%	11.00%	90.00%	$ 2.58	10.00%	100.00%	12.00%	90.00%	$ 3.51	3.00%	100.00%	7.00%	90.00%
Rocky Trench	$ 4.52	0.00%	100.00%	0.00%	90.00%	$ 4.66	8.00%	100.00%	8.00%	90.00%	$ 6.00	28.00%	100.00%	32.00%	90.00%
Backhoe Trench	$ 3.04	6.00%	100.00%	3.00%	90.00%	$ 3.19	10.00%	100.00%	2.00%	90.00%	$ 4.70	2.00%	100.00%	2.00%	90.00%
Hand Dig Trench	$ 5.49	5.00%	100.00%	0.00%	90.00%	$ 5.72	5.00%	100.00%	2.00%	90.00%	$ 7.96	5.00%	100.00%	2.00%	90.00%
Bore Cable	$ 12.53	3.00%	100.00%	1.00%	90.00%	$ 12.86	1.00%	100.00%	1.00%	90.00%	$ 16.09	1.00%	100.00%	1.00%	90.00%
Push Pipe & Pull Cable	$ 7.39	1.00%	100.00%	1.00%	90.00%	$ 7.65	1.00%	100.00%	1.00%	90.00%	$ 10.27	1.00%	100.00%	1.00%	90.00%
Cut & Restore Asphalt	$ 9.09	5.00%	100.00%	5.00%	90.00%	$ 11.25	5.00%	100.00%	5.00%	90.00%	$ 12.88	5.00%	100.00%	5.00%	90.00%
Cut & Restore Concrete	$ 9.96	4.00%	100.00%	4.00%	90.00%	$ 12.11	4.00%	100.00%	4.00%	90.00%	$ 13.60	4.00%	100.00%	4.00%	90.00%
Cut & Restore Sod	$ 4.08	6.00%	100.00%	6.00%	90.00%	$ 4.92	6.00%	100.00%	6.00%	90.00%	$ 6.40	6.00%	100.00%	6.00%	90.00%

Density Group 51-150		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group 151-500	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
onduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
rench & Backfill	$ 2.59	35.00%	98.00%	45.00%	80.00%	$ 2.69	15.00%	98.00%	15.00%	80.00%	374.00%	0.00%	98.00%	0.00%	80.00%
ocky Trench	$ 4.67	0.00%	98.00%	0.00%	80.00%	$ 4.83	33.00%	98.00%	32.00%	80.00%	634.00%	50.00%	98.00%	50.00%	80.00%
ackhoe Trench	$ 3.21	33.00%	98.00%	23.00%	80.00%	$ 3.38	20.00%	98.00%	21.00%	80.00%	508.00%	18.00%	98.00%	18.00%	80.00%
and Dig Trench	$ 5.74	3.00%	98.00%	3.00%	80.00%	$ 6.00	3.00%	98.00%	3.00%	80.00%	852.00%	3.00%	98.00%	3.00%	80.00%
oring	$ 12.90	4.00%	98.00%	4.00%	80.00%	$ 13.26	4.00%	98.00%	4.00%	80.00%	1690.00%	4.00%	98.00%	4.00%	80.00%
ut & Restore Asphalt	$ 9.27	8.00%	98.00%	8.00%	80.00%	$ 11.45	8.00%	98.00%	8.00%	80.00%	1328.00%	8.00%	98.00%	8.00%	80.00%
ut & Restore Concrete	$ 10.13	7.00%	98.00%	7.00%	80.00%	$ 12.30	7.00%	98.00%	7.00%	80.00%	1397.00%	7.00%	98.00%	7.00%	80.00%
ut & Restore Sod	$ 4.25	10.00%	98.00%	10.00%	80.00%	$ 5.09	10.00%	98.00%	10.00%	80.00%	676.00%	10.00%	98.00%	10.00%	80.00%

Density Group 151-500	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.20	33.00%	100.00%	21.00%	100.00%	$ 1.22	5.00%	100.00%	3.00%	100.00%	$ 1.43	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.47	0.00%	100.00%	0.00%	100.00%	$ 1.51	13.00%	100.00%	12.00%	100.00%	$ 1.85	13.00%	100.00%	13.00%	100.00%
Trench & Backfill	$ 2.59	20.00%	98.00%	30.00%	80.00%	$ 2.69	5.00%	98.00%	5.00%	80.00%	$ 3.74	0.00%	98.00%	8.00%	80.00%
Rocky Trench	$ 4.67	0.00%	98.00%	0.00%	80.00%	$ 4.83	25.00%	98.00%	27.00%	80.00%	$ 6.34	40.00%	98.00%	30.00%	80.00%
Backhoe Trench	$ 3.21	10.00%	98.00%	12.00%	80.00%	$ 3.38	15.00%	98.00%	16.00%	80.00%	$ 5.08	10.00%	98.00%	12.00%	80.00%
Hand Dig Trench	$ 5.74	3.00%	98.00%	3.00%	80.00%	$ 6.00	3.00%	98.00%	3.00%	80.00%	$ 8.52	3.00%	98.00%	3.00%	80.00%
Bore Cable	$ 12.90	4.00%	98.00%	4.00%	80.00%	$ 13.26	4.00%	98.00%	4.00%	80.00%	$ 16.90	4.00%	98.00%	4.00%	80.00%
Push Pipe & Pull Cable	$ 7.69	5.00%	98.00%	5.00%	80.00%	$ 7.98	5.00%	98.00%	5.00%	80.00%	$ 10.92	5.00%	98.00%	5.00%	80.00%
Cut & Restore Asphalt	$ 9.27	8.00%	98.00%	8.00%	80.00%	$ 11.45	8.00%	98.00%	8.00%	80.00%	$ 13.28	8.00%	98.00%	8.00%	80.00%
Cut & Restore Concrete	$ 10.13	7.00%	98.00%	7.00%	80.00%	$ 12.30	7.00%	98.00%	7.00%	80.00%	$ 13.97	7.00%	98.00%	7.00%	80.00%
Cut & Restore Sod	$ 4.25	10.00%	98.00%	10.00%	80.00%	$ 5.09	10.00%	98.00%	10.00%	80.00%	$ 6.76	10.00%	98.00%	10.00%	80.00%

Density Group 151-500		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group 501-2000	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.69	27.00%	95.00%	40.00%	80.00%	$ 2.81	9.00%	95.00%	8.00%	80.00%	398.00%	0.00%	95.00%	5.00%	80.00%
Rocky Trench	$ 4.83	0.00%	95.00%	0.00%	80.00%	$ 4.99	28.00%	95.00%	30.00%	80.00%	668.00%	45.00%	95.00%	32.00%	80.00%
Backhoe Trench	$ 3.38	30.00%	95.00%	7.00%	80.00%	$ 3.57	20.00%	95.00%	9.00%	80.00%	546.00%	12.00%	95.00%	10.00%	80.00%
Hand Dig Trench	$ 6.00	6.00%	95.00%	6.00%	80.00%	$ 6.28	6.00%	95.00%	6.00%	80.00%	908.00%	6.00%	95.00%	6.00%	80.00%
Boring	$ 13.26	2.00%	95.00%	2.00%	80.00%	$ 13.66	2.00%	95.00%	2.00%	80.00%	1770.00%	2.00%	95.00%	2.00%	80.00%
Cut & Restore Asphalt	$ 9.45	13.00%	95.00%	13.00%	80.00%	$ 11.66	13.00%	95.00%	13.00%	80.00%	1369.00%	13.00%	95.00%	13.00%	80.00%
Cut & Restore Concrete	$ 10.30	12.00%	95.00%	12.00%	80.00%	$ 12.48	12.00%	95.00%	12.00%	80.00%	1435.00%	12.00%	95.00%	12.00%	80.00%
Cut & Restore Sod	$ 4.41	10.00%	95.00%	20.00%	80.00%	$ 5.28	10.00%	95.00%	20.00%	80.00%	714.00%	10.00%	95.00%	20.00%	80.00%

Density Group 501-2000	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.22	15.00%	100.00%	20.00%	100.00%	$ 1.24	3.00%	100.00%	2.00%	100.00%	$ 1.48	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.51	0.00%	100.00%	0.00%	100.00%	$ 1.54	3.00%	100.00%	2.00%	100.00%	$ 1.93	3.00%	100.00%	3.00%	100.00%
Trench & Backfill	$ 2.69	26.00%	95.00%	20.00%	80.00%	$ 2.81	15.00%	95.00%	5.00%	80.00%	$ 3.98	0.00%	95.00%	0.00%	80.00%
Rocky Trench	$ 4.83	0.00%	95.00%	0.00%	80.00%	$ 4.99	25.00%	95.00%	25.00%	80.00%	$ 6.68	35.00%	95.00%	27.00%	80.00%
Backhoe Trench	$ 3.38	11.00%	95.00%	2.00%	80.00%	$ 3.57	6.00%	95.00%	8.00%	80.00%	$ 5.46	14.00%	95.00%	12.00%	80.00%
Hand Dig Trench	$ 6.00	6.00%	95.00%	6.00%	80.00%	$ 6.28	6.00%	95.00%	6.00%	80.00%	$ 9.08	6.00%	95.00%	6.00%	80.00%
Bore Cable	$ 13.26	2.00%	95.00%	2.00%	80.00%	$ 13.66	2.00%	95.00%	2.00%	80.00%	$ 17.70	2.00%	95.00%	2.00%	80.00%
Push Pipe & Pull Cable	$ 7.98	5.00%	95.00%	5.00%	80.00%	$ 8.31	5.00%	95.00%	5.00%	80.00%	$ 11.57	5.00%	95.00%	5.00%	80.00%
Cut & Restore Asphalt	$ 9.45	13.00%	95.00%	13.00%	80.00%	$ 11.66	13.00%	95.00%	13.00%	80.00%	$ 13.69	13.00%	95.00%	13.00%	80.00%
Cut & Restore Concrete	$ 10.30	12.00%	95.00%	12.00%	80.00%	$ 12.48	12.00%	95.00%	12.00%	80.00%	$ 14.35	12.00%	95.00%	12.00%	80.00%
Cut & Restore Sod	$ 4.41	10.00%	95.00%	20.00%	80.00%	$ 5.28	10.00%	95.00%	20.00%	80.00%	$ 7.14	10.00%	95.00%	20.00%	80.00%

Density Group 501-2000		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group 2001-5000	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.80	5.00%	95.00%	5.00%	80.00%	$ 2.93	2.00%	95.00%	2.00%	80.00%	421.00%	0.00%	95.00%	0.00%	80.00%
Rocky Trench	$ 4.98	0.00%	95.00%	0.00%	80.00%	$ 5.16	5.00%	95.00%	5.00%	80.00%	701.00%	15.00%	95.00%	14.00%	80.00%
Backhoe Trench	$ 3.55	20.00%	95.00%	19.00%	80.00%	$ 3.76	18.00%	95.00%	17.00%	80.00%	584.00%	10.00%	95.00%	10.00%	80.00%
Hand Dig Trench	$ 6.25	8.00%	95.00%	8.00%	80.00%	$ 6.56	8.00%	95.00%	8.00%	80.00%	964.00%	8.00%	95.00%	8.00%	80.00%
Boring	$ 13.62	15.00%	95.00%	15.00%	80.00%	$ 14.07	15.00%	95.00%	15.00%	80.00%	1851.00%	15.00%	95.00%	15.00%	80.00%
Cut & Restore Asphalt	$ 9.64	25.00%	95.00%	25.00%	80.00%	$ 11.86	25.00%	95.00%	25.00%	80.00%	1410.00%	25.00%	95.00%	25.00%	80.00%
Cut & Restore Concrete	$ 10.46	20.00%	95.00%	20.00%	80.00%	$ 12.67	20.00%	95.00%	20.00%	80.00%	1472.00%	20.00%	95.00%	20.00%	80.00%
Cut & Restore Sod	$ 4.59	7.00%	95.00%	8.00%	80.00%	$ 5.47	7.00%	95.00%	8.00%	80.00%	750.00%	7.00%	95.00%	8.00%	80.00%

Density Group 2001-5000	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.24	0.00%	100.00%	0.00%	100.00%	$ 1.27	0.00%	100.00%	0.00%	100.00%	$ 1.52	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.54	0.00%	100.00%	0.00%	100.00%	$ 1.58	0.00%	100.00%	0.00%	100.00%	$ 2.00	0.00%	100.00%	0.00%	100.00%
Trench & Backfill	$ 2.80	5.00%	95.00%	5.00%	80.00%	$ 2.93	2.00%	95.00%	2.00%	80.00%	$ 4.21	0.00%	95.00%	0.00%	80.00%
Rocky Trench	$ 4.98	0.00%	95.00%	0.00%	80.00%	$ 5.16	5.00%	95.00%	5.00%	80.00%	$ 7.01	15.00%	95.00%	14.00%	80.00%
Backhoe Trench	$ 3.55	20.00%	95.00%	19.00%	80.00%	$ 3.76	18.00%	95.00%	17.00%	80.00%	$ 5.84	10.00%	95.00%	10.00%	80.00%
Hand Dig Trench	$ 6.25	8.00%	95.00%	8.00%	80.00%	$ 6.56	8.00%	95.00%	8.00%	80.00%	$ 9.64	8.00%	95.00%	8.00%	80.00%
Bore Cable	$ 13.62	15.00%	95.00%	15.00%	80.00%	$ 14.07	15.00%	95.00%	15.00%	80.00%	$ 18.51	15.00%	95.00%	15.00%	80.00%
Push Pipe & Pull Cable	$ 8.27	0.00%	95.00%	0.00%	80.00%	$ 8.63	0.00%	95.00%	0.00%	80.00%	$ 12.23	0.00%	95.00%	0.00%	80.00%
Cut & Restore Asphalt	$ 9.64	25.00%	95.00%	25.00%	80.00%	$ 11.86	25.00%	95.00%	25.00%	80.00%	$ 14.10	25.00%	95.00%	25.00%	80.00%
Cut & Restore Concrete	$ 10.46	20.00%	95.00%	20.00%	80.00%	$ 12.67	20.00%	95.00%	20.00%	80.00%	$ 14.72	20.00%	95.00%	20.00%	80.00%
Cut & Restore Sod	$ 4.59	7.00%	95.00%	8.00%	80.00%	$ 5.47	7.00%	95.00%	8.00%	80.00%	$ 7.50	7.00%	95.00%	8.00%	80.00%

Density Group 2001-5000		Aerial Normal				Aerial Soft Rock				Aerial Hard Rock			
		Feeder		Distribution		Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Density Group >5001	Underground														
	Normal					Soft Rock					Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Conduit Installation	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone	Cost per Unit	% Activity	% Assigned Telephone	% Activity	% Assigned Telephone
Trench & Backfill	$ 2.86	3.00%	95.00%	3.00%	80.00%	$ 2.99	0.00%	95.00%	0.00%	80.00%	433.00%	0.00%	95.00%	0.00%	80.00%
Rocky Trench	$ 5.06	0.00%	95.00%	0.00%	80.00%	$ 5.25	6.00%	95.00%	6.00%	80.00%	718.00%	10.00%	95.00%	10.00%	80.00%
Backhoe Trench	$ 3.64	15.00%	95.00%	15.00%	80.00%	$ 3.85	12.00%	95.00%	12.00%	80.00%	603.00%	8.00%	95.00%	8.00%	80.00%
Hand Dig Trench	$ 6.39	8.00%	95.00%	8.00%	80.00%	$ 6.70	8.00%	95.00%	8.00%	80.00%	993.00%	8.00%	95.00%	8.00%	80.00%
Boring	$ 13.82	10.00%	95.00%	10.00%	80.00%	$ 14.27	10.00%	95.00%	10.00%	80.00%	1892.00%	10.00%	95.00%	10.00%	80.00%
Cut & Restore Asphalt	$ 9.74	33.00%	95.00%	33.00%	80.00%	$ 11.96	33.00%	95.00%	33.00%	80.00%	1430.00%	33.00%	95.00%	33.00%	80.00%
Cut & Restore Concrete	$ 10.56	28.00%	95.00%	28.00%	80.00%	$ 12.76	28.00%	95.00%	28.00%	80.00%	1491.00%	28.00%	95.00%	28.00%	80.00%
Cut & Restore Sod	$ 4.68	3.00%	95.00%	3.00%	80.00%	$ 5.57	3.00%	95.00%	3.00%	80.00%	770.00%	3.00%	95.00%	3.00%	80.00%

Density Group >5001	Buried Normal					Buried Soft Rock					Buried Hard Rock				
	Install	Feeder		Distribution		Install	Feeder		Distribution		Install	Feeder		Distribution	
Buried Cable Installation	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone	Cost	% of Activity	% Assigned Telephone	% of Activity	% Assigned Telephone
Plow	$ 1.25	0.00%	100.00%	0.00%	100.00%	$ 1.28	0.00%	100.00%	0.00%	100.00%	$ 1.55	0.00%	100.00%	0.00%	100.00%
Rocky Plow	$ 1.56	0.00%	100.00%	0.00%	100.00%	$ 1.60	0.00%	100.00%	0.00%	100.00%	$ 2.04	0.00%	100.00%	0.00%	100.00%
Trench & Backfill	$ 2.86	3.00%	95.00%	3.00%	80.00%	$ 2.99	0.00%	95.00%	0.00%	80.00%	$ 4.33	0.00%	95.00%	0.00%	80.00%
Rocky Trench	$ 5.06	0.00%	95.00%	0.00%	80.00%	$ 5.25	6.00%	95.00%	6.00%	80.00%	$ 7.18	10.00%	95.00%	10.00%	80.00%
Backhoe Trench	$ 3.64	15.00%	95.00%	15.00%	80.00%	$ 3.85	12.00%	95.00%	12.00%	80.00%	$ 6.03	8.00%	95.00%	8.00%	80.00%
Hand Dig Trench	$ 6.39	8.00%	95.00%	8.00%	80.00%	$ 6.70	8.00%	95.00%	8.00%	80.00%	$ 9.93	8.00%	95.00%	8.00%	80.00%
Bore Cable	$ 13.82	10.00%	95.00%	10.00%	80.00%	$ 14.27	10.00%	95.00%	10.00%	80.00%	$ 18.92	10.00%	95.00%	10.00%	80.00%
Push Pipe & Pull Cable	$ 8.44	0.00%	95.00%	0.00%	80.00%	$ 8.80	0.00%	95.00%	0.00%	80.00%	$ 12.55	0.00%	95.00%	0.00%	80.00%
Cut & Restore Asphalt	$ 9.74	33.00%	95.00%	33.00%	80.00%	$ 11.96	33.00%	95.00%	33.00%	80.00%	$ 14.30	33.00%	95.00%	33.00%	80.00%
Cut & Restore Concrete	$ 10.56	28.00%	95.00%	28.00%	80.00%	$ 12.76	28.00%	95.00%	28.00%	80.00%	$ 14.91	28.00%	95.00%	28.00%	80.00%
Cut & Restore Sod	$ 4.68	3.00%	95.00%	3.00%	80.00%	$ 5.57	3.00%	95.00%	3.00%	80.00%	$ 7.70	3.00%	95.00%	3.00%	80.00%

Density Group >5001	Aerial Normal					Aerial Soft Rock				Aerial Hard Rock			
	Feeder		Distribution			Feeder		Distribution		Feeder		Distribution	
Aerial Cable Installation	Cost	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone	Installation Cost per Unit	% Assigned Telephone
Poles	$ 368.17	$ 358.58	67.00%	$ 358.58	67.00%	$ 458.58	67.00%	$ 458.58	67.00%	$ 558.58	67.00%	$ 558.58	67.00%
Anchors and Guys	$ 68.00	$ 255.00	100.00%	$ 255.00	100.00%	$ 285.00	100.00%	$ 285.00	100.00%	$ 310.00	100.00%	$ 310.00	100.00%

Cost Tables

Copper Distribution Cost Table

DistrCableCost	COPPER DISTRIBUTION COST		
DistrCableSize	Cost Underground	Cost Buried	Cost Aerial
3600	$33.30	$30.20	$61.78
3000	$28.21	$29.19	$57.91
2400	$23.02	$25.79	$45.93
2100	$19.50	$22.56	$33.18
1800	$17.55	$20.46	$27.86
1200	$12.07	$13.20	$15.94
900	$9.40	$10.70	$12.74
600	$7.52	$7.27	$10.17
400	$6.55	$5.67	$6.63
300	$4.42	$4.38	$5.43
200	$3.60	$3.49	$4.69
100	$2.65	$2.52	$3.72
50	$2.42	$2.16	$3.33
25	$1.51	$1.93	$2.97
18	$1.32	$1.75	$3.63
12	$1.16	$1.28	$2.53

Copper Feeder Cost Table

FeederCableCost	COPPER FEEDER COST		
FeederCableSize	Cost Underground	Cost Buried	Cost Aerial
4200	$35.60	$33.16	$37.18
3600	$33.30	$30.20	$34.01
3000	$28.21	$29.19	$33.36
2400	$21.50	$26.79	$26.26
2100	$19.49	$22.60	$20.88
1800	$17.38	$20.46	$19.28
1200	$11.95	$13.20	$12.78
900	$9.98	$10.70	$9.86
600	$7.52	$7.27	$7.21
400	$6.55	$5.67	$5.58
300	$4.42	$4.38	$4.88
200	$3.60	$3.49	$3.84
100	$2.65	$2.52	$2.99
50	$1.19	$2.16	$2.59
25	$1.00	$1.93	$2.50

Cost Tables

Fiber Cable Cost Table

FiberCableCost	FIBER CABLE COST		
FiberCableSize	Cost Underground	Cost Buried	Cost Aerial
288	$11.00	$11.00	$11.18
144	$10.30	$9.96	$10.53
96	$7.40	$7.43	$7.87
72	$6.25	$6.00	$7.43
60	$5.50	$5.17	$6.70
48	$4.75	$4.95	$5.95
36	$4.15	$4.01	$5.35
24	$3.75	$3.93	$4.13
18	$3.48	$3.25	$3.94
12	$3.09	$2.75	$3.72

Drop Terminal Cost Table

Drop Terminal Cost Installed			
Size	Buried	Aerial	Building/Underground
0	$440.87	$131.81	N/A
26	$451.00	$216.00	$509.43
51	N/A	N/A	$811.60
101	N/A	N/A	$1,293.09
201	N/A	N/A	$1,965.71
301	N/A	N/A	$2,324.03
401	N/A	N/A	$2,839.49
501	N/A	N/A	$3,756.64
601	N/A	N/A	$3,870.42
701	N/A	N/A	$4,385.89
801	N/A	N/A	$4,901.36

Cost Tables

Feeder Distribution Interface Cost Table

Fdi Cost per Line	
Size	Total Cost
0	$407.00
26	$1,885.00
51	$2,120.00
101	$2,355.00
151	$2,590.00
201	$5,509.49
301	$6,848.35
451	$7,586.00
601	$8,717.30
901	$11,489.93
1351	$11,712.81
1801	$13,370.00
2101	$15,308.00
2251	$16,084.00
2401	$17,248.00
2701	$18,994.00
3150	$20,740.00

Digital Carrier Cost Table

Cost for AFC/SLC 200/LightSpan equipment		
Dlc Fiber Size	Fixed Cost	Per Line Cost
0	$44,867.52	$92.81
49	$70,084.62	$92.81
121	$85,785.33	$92.81
241	$105,730.35	$92.81
673	$125,120.85	$92.81
1335	$230,851.20	$92.81

Cost Tables

CO Switch Cost Table

CO Switch Cost		
Company Size	Fixed/Startup $	Per Line $
S	$261,871.00	$225.00
M	$261,871.00	$225.00
L	$261,871.00	$225.00

Conduit Manhole Table

Conduit Manhole Table

Duct capacity in manhole	Unit	Per Unit Material Cost	Installation Cost Per Unit			% Assigned Telephone	Cost of installed facility assigned telephone		
			Normal	Soft Rock	Hard Rock		Normal	Soft Rock	Hard Rock
0	Hand Hole	$944.00	$400.00	$600.00	$800.00	100%	$1,344.00	$1,544.00	$1,744.00
3	4X Manhole	$2,138.25	$1,645.00	$2,045.00	$2,445.00	100%	$3,783.25	$4,183.25	$4,583.25
5	9X Manhole	$3,209.00	$2,431.00	$2,831.00	$3,231.00	100%	$5,640.00	$6,040.00	$6,440.00
99	9X Adder	$2,800.00	$500.00	$700.00	$900.00	100%	$3,300.00	$3,500.00	$3,700.00
n/a	Conduit per duct foot	$0.83	NA	NA	NA	100.00%	$0.83	NA	NA

Percentage Tables

Distribution Plant Mix Table

Distribution UG/Aerial Mix Table			
Density	UnderGround %	Buried %	Aerial%
0	10.00%	80.00%	10.00%
11	15.00%	77.00%	8.00%
51	20.00%	74.00%	6.00%
151	25.00%	70.00%	5.00%
501	30.00%	67.00%	3.00%
2001	60.00%	40.00%	0.00%
5001	95.00%	5.00%	0.00%

Copper Plant Mix Table

Copper Feeder UG/Aerial Mix Table			
Density	UnderGround %	Buried %	Aerial%
0	10.00%	80.00%	10.00%
11	15.00%	77.00%	8.00%
51	20.00%	74.00%	6.00%
151	25.00%	70.00%	5.00%
501	75.00%	22.00%	3.00%
2001	85.00%	15.00%	0.00%
5001	95.00%	5.00%	0.00%

Fiber Plant Mix Table

Fiber Feeder UG/Aerial Mix Table			
Density	UnderGround %	Buried %	Aerial%
0	10.00%	80.00%	10.00%
11	15.00%	77.00%	8.00%
51	20.00%	74.00%	6.00%
151	25.00%	70.00%	5.00%
501	75.00%	22.00%	3.00%
2001	85.00%	15.00%	0.00%
5001	95.00%	5.00%	0.00%

Density Fill Table

Density	Feeder	Distribution
0	75.00%	40.00%
11	80.00%	45.00%
51	80.00%	55.00%
151	85.00%	65.00%
501	85.00%	65.00%
2001	85.00%	65.00%
5001	85.00%	65.00%

Percentage Tables

Structure Allocation Table

Cable Size	Cable Structure %	Fiber Structure %
0	50.00%	50.00%
200	50.00%	50.00%
900	50.00%	50.00%
2400	50.00%	50.00%
4200	50.00%	50.00%
>4200	75.00%	25.00%

Over4200

Voice Grade Ratio Table

# switched lines in CBG	% switched to VG	% switched to DS1	% special to VG	% special to DS1
0	100.00%	0.00%	100.00%	0.00%
2,016	65.00%	35.00%	50.00%	50.00%
10,000	50.00%	50.00%	30.00%	70.00%
20,000	75.00%	25.00%	10.00%	90.00%

Miscellaneous Table Inputs

Spacing Table

In Feet				
Density	Manhole Spacing	Pole Spacing	Guy Spacing	Relative Pole Units
0	725	250	1500	6.00
11	725	250	1500	6.00
51	725	250	1500	6.00
151	725	250	1500	6.00
501	550	150	1000	6.67
2001	550	150	500	3.33
5001	550	150	500	3.33

Surface Condition Table

Condition #	Conduit Column #
1	10
2	9
3	8

Miscellaneous Inputs

Cable & Wire Inputs

		Description
NormalUGDepth	24.00	Normal Placement Depth in inches for Buried/Underground Copper Cable
NormalFiberDepth	36.00	Normal Placement Depth in inches for Buried/Underground Fiber
MaxFiberSize	288	Maximum Fiber Cable Size
MaxFeederSize	4,200	Maximum Copper Feeder Cable Size
Max DistSize	3,600	Maximum Copper Distribution Cable Size
CprMaxDistr	12,000	Maximum length of copper cable in the CBG distribution area
	0.00%	Fiber Cable Discount %
	0.00%	Copper Cable Discount %
DropCostPerFoot	$0.43	Drop Cost per Foot Material & Installation
PedestalCost	$0.00	Cost of Pedestal included in Drop Terminal Cost
NidCost	$77.97	Unit Cost per Network Interface Device Including Installation

Switching Inputs

SwitchFillFactor	80.00%	Switch Fill Factor
SwBldgFactor	0.0738	Sw Building Factor
SwLandFactor	0.0117	Sw Land Factor
TrfSen	73.93%	% of Traffic Sensitive that is local
InterofficeSwRatio	0.030	Multiplier to add interoffice trunking cost
	0.00%	Digital Switching Discount %

Terrain Inputs and Surface Impacts

CriticalWaterDepth	3	Depth in feet at which water impacts placement costs
WaterFactor	30.00%	% Cost increase for presence of water within critical depth
NewTerrainTrigger	5	Value that triggers new terrain variable multiplier
NewTerrainFactor	1	Cost multiplier when new terrain variable exceeds trigger point
MinSlopeTrigger	12	Point at which minimum slope effects placement distance
MinSlopeFactor	1.100	Change in distance due to increased average slope
MaxSlopeTrigger	30	Point where presence of very high slope causes yet more cable distance
MaxSlopeFactor	1.0500	Change in distance due to a maximum only slope presence
CombSlopeFactor	1.200	Secondary change in distance due to substantial slope presence

Census Data Inputs - State Specific

ResLinesMultiplier	1.403	Residence Lines per household multiplier
SpecAccRatio	0.130	Ratio of Special Access Lines to Business and Special Access
DensAdjUnits	10	Average Number of Business lines per location

Digital Carrier Inputs

OpticsCost	$75,000	Material & Installation for Fiber Optics Terminal at CO and Customer Loc
CopperT1	$2,500	Average Cost per DS-1 on copper (both terminals & repeater)
ElectronicFill	85.00%	Fill Factors for Electronics
HiCapFill	95.00%	Fill Factors for High Capacity Optic Multiplexers
	0.00%	Small DLC Electronics Discount %
	0.00%	Large DLC Electronics Discount %